

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of	:	Attorney Docket No. 2006_1570A
Pascal DAGUIER et al.	:	Confirmation No. 2691
Serial No. 10/593,463	:	Group Art Unit 1793
Filed September 19, 2006	:	Examiner Mark L. Shevin
STEEL FOR MECHANICAL PARTS, METHOD FOR PRODUCING MECHANICAL PARTS FROM SAID STEEL AND THE THUS OBTAINABLE MECHANICAL PARTS	:	Mail Stop: Appeal Brief - Patents

REPLY BRIEF

Commissioner for Patents
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Sir:

In accordance with the provisions of 37 CFR 41.41, Appellants submit this Reply Brief in response to the Examiner's Answer dated March 25, 2011. Entry of this Reply Brief is respectfully requested.

STATUS OF THE CLAIMS

Claims 1-4 stand finally rejected.

Claims 5-8 have been cancelled.

Appellants appeal the rejection of claim 1-4.

GROUND OF REJECTION TO BE REVIEWED ON APPEAL

Claims 1-4 were rejected under 35 U.S.C. 103(a) as being unpatentable over Badard (WO 03/012156 - Full English Translation).

ARGUMENT

For the reasons set forth in the Appellants' Appeal Brief filed on February 28, 2011, the rejection of the claims on appeal should be reversed. In addition, Appellants submit the following remarks in view of the Examiner's comments in the Examiner's Answer dated March 25, 2011.

I. Rejection of claims 1-4 under 35 U.S.C. 103(a) as being unpatentable over Badard (WO 03/012156 - Full English Translation).

1. First Response to the Examiner's Answer

On pages 7-9 of the Examiner's Answer, the Examiner states that the examples given in the specification of the instant application are not sufficient to establish unexpected results over the entire claimed range. In particular, the Examiner appears to take the position that (i) the justifications given for the upper limits of elements C, Mn, Si, Cr, and Mo are not related to obtaining a Jominy curve without a marked inflection point, and (ii) the specification does not disclose that the ranges of Al, Nb, and N are required to obtain a Jominy curve without a marked inflection point.

In response, Appellants initially note that the presently claimed invention achieves the unexpected result of a composition of steel which produces a Jominy curve with no marked inflection point, and that such claimed composition of steel is advantageous for producing greatly reduced deformation during the quenching operation following a carburizing or carbonitriding operation. Additionally, it is noted that the claimed composition of steel must remain convenient to perform its intended use, and as such, it would be meaningless to obtain a steel with a Jominy curve without a marked inflection point if some mechanical properties, which do not influence the shape of the Jominy curve, would cause the steel to be insufficient for the intended use of the steel.

In other words, if it is known that beyond a given content of some elements that a satisfactory steel could not be obtained (e.g., it is known based upon classical metallurgical reasons), Appellants respectfully submit that it is unnecessary to study what influence too high a

content of the elements would have on the shape of a Jominy curve if the too high contents of the elements would result in a steel unsuitable for its intended purpose. Accordingly, the inventors in the instant application have developed the presently claimed invention by limiting the ranges studied to the ranges that would make the steels convenient for their intended uses (e.g., steel for use in mechanical parts).

Additionally, Appellants would like to point out that the drawbacks of the too high contents of the elements of the presently claimed invention are discussed in the specification, and as such, the upper limits of the claimed ranges have been defined based on Appellants' good faith.

In view of the above, Appellants respectfully submit that it is unnecessary to provide comparative steels having alloying elements present in amounts greater than claimed to illustrate the unexpected results of the presently claimed invention since it would be meaningless to obtain a steel with a Jominy curve without a marked inflection point if some mechanical properties, which do not influence the shape of the Jominy curve, would cause the steel to be insufficient for the intended use of the steel. In this regard, Appellants note that such a requirement would cause an undue burden on the Appellants since such tests are clearly unnecessary due to classical metallurgical reasons.

2. Second Response to the Examiner's Answer

On page 9 of the Examiner's Answer, the Examiner states that "[w]hile Appellants tie the lack of a significantly marked inflection point to minimal deformations during later quenching, there is no measurement of deflection between the inventive and comparative steels to see the extent that deformation is at issue and determined the objective practical effect." Appellants note that the Examiner appears to be taking the position that Appellants have not clearly demonstrated that an absence of a marked inflection point on the Jominy curve would result in minimized deformation during quenching.

In response, Appellants note on page 6 of the specification as originally filed, the specification references European Patent Application EP 0 890 653 and describes that it was

demonstrated that “a composition of the steel which produces a Jominy curve with no inflection point was advantageous for producing greatly reduced deformations during the quenching operation following a carburizing or carbonitriding operation.” It is also noted that a copy of the EP 0 890 653, as well as an indication that the reference corresponds to US 6,090,225, was provided along with the Information Disclosure Statement filed on September 19, 2006.

In view of the above, Appellants respectfully submit that the provided EP 0 890 653 reference and the description provided in the specification at page 6 clearly demonstrates that obtaining a linear Jominy curve (i.e., a Jominy curve without a marked inflection point) by modifying the steel composition would be advantageous to minimizing deformations during quenching.

3. Third Response to the Examiner’s Answer

On pages 9 and 10 of the Examiner’s Answer, the Examiner states that “the question of whether an inflection point is marked, significantly marked, or not marked in the curves of Figure 1, is very much in the eye of the beholder and thus introduces a degree of subjectivity that further diminishes the weight of such evidence.” Appellants respectfully disagree.

In this regard, Appellants note that the specification clearly discloses that in order to have no marked inflection point, the two relationships defined by claim 1 linking the J_X values must be obtained (*See* pages 6 and 7 of the specification). It is noted that the curves illustrated in the figure included in the instant application visibly show whether the two relationships required by the presently claimed invention are fulfilled for each of the sample steels (*See* pages 13 and 14 of the specification).

Further, Appellants note that it is clearly unnecessary to subjectively discuss what is or is not a marked inflection point because ordinary measurements and easy calculations allow for one to objectively determine if a steel is within the scope of the claims of the presently claimed invention (*See* pages 6 and 7 of the specification).

In view of the above, Appellants respectfully submit that a determination of whether a particular sample falls within the scope of the presently claimed invention is objectively verifiable, and thus the evidence provided during the prosecution of the instant application does not introduce a degree of subjectivity.

4. Fourth Response to the Examiner's Answer

On page 10 of the Examiner's Answer, the Examiner states that "[w]henver an alloying element of the comparative examples was outside the claimed range, particularly Cr and Mo, it was always lower." Appellants note that the above-noted statement is provided in reference to a "major failing" of the evidence provided by the Appellants. As such, the Examiner appears to take the position that it would be necessary to show results where the content of Cr and Mo are higher than that of the ranges of the presently claimed invention in order to show that the claimed ranges of Cr and Mo are critical for producing the unexpected results of the presently claimed invention.

In response, Appellants note that the limits of the claimed ranges for the different elements, taken together, are critical to obtain a Jominy curve according to the invention. However, Appellants respectfully submit that there is no contradistinction with the aim of the instant application to say that, beyond the upper limits of some elements, there would be strong reasons, not linked with the shape of the Jominy curve, not to employ these steels for the main considered uses.

In other words, the instant application must take into account not only the desirable effect of obtaining a Jominy curve with no marked inflection point, but also the mechanical properties necessary for the main use of a steel. As such, the claimed ranges of the instant application simultaneously balance (i) producing a steel having a composition for obtaining a desired Jominy curve with no marked inflection point and (ii) producing a steel with the necessary mechanical properties. Accordingly, Appellants respectfully submit that the combination of the twelve elements, as claimed in the presently claimed invention, provides satisfactory results for producing both (i) a steel having a composition for obtaining a desired Jominy curve with no marked inflection point and (ii) a steel with the necessary mechanical properties.

In view of the above, Appellants respectfully submit that it is unnecessary to show results where the content of Cr and Mo are higher than that of the ranges of the presently claimed invention in order to show that the claimed ranges of Cr and Mo are critical for producing the unexpected results of the presently claimed invention because the claimed ranges for the different elements recited in the claims, taken together, are critical to obtain a Jominy curve according to the present invention.

II. Conclusion

For the reasons set forth above, as well as the reasons set forth in Appellants' Appeal Brief filed on February 28, 2011, Appellants respectfully request that the Board reverse the Examiner's rejection of all claims on appeal. A favorable decision on the merits of this Appeal is respectfully requested.

Respectfully submitted,

Pascal DAGUIER et al.

/Stephen W. Kopchik/

By 2011.05.25 12:14:05 -04'00'

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